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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,575	02/10/2004	Herry Sutanto	MS306582.01/MSFTP2330US	8896
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TUROCY & WATSON, LLP 127 Public Square 57th Floor, Key Tower CLEVELAND, OH 44114				
EXAMINER				
KINSAUL, DANIEL W				
ART UNIT		PAPER NUMBER		
2165				
NOTIFICATION DATE		DELIVERY MODE		
08/04/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/774,575

**Applicant(s)**

SUTANTO ET AL.

**Examiner**

DANIEL KINSAUL

**Art Unit**

2165

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-24 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date 2/10/04  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 5 and 13-24 are rejected under 35 U.S.C. 101 because the claimed inventions are directed to non-statutory subject matter.

With respect to dependent claims 5 and 13, and independent claims 14 and 18, the claims recite a “computer-readable medium.” The specification states that the medium may include communication media - such as a signal, carrier wave or other transport mechanism (paragraph [0021] of specification). A signal, a form of energy, does not fall within one of the four statutory classes of 35 U.S.C. 101. Thus, claims 5, 13, 14 and 18 are directed to nonstatutory subject matter (*see MPEP §2106*).

With respect to dependent claims 15-17 and 19-24, the claims fail to correct the deficiencies of the claims from which they depend, and thus are not patent-eligible under 35 U.S.C. 101.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5-7, 9-16, 18, 19 and 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by “Recognizing Mathematical Expressions Using Tree Transformations,” by Zanibbi et al (2002), (hereinafter Zanibbi et al).

With respect to independent claim 1, Zanibbi et al discloses a **method** (Abstract).

**Transforming data from a first data structure to a second data structure** is disclosed at p. 1456, col. 1, paragraph 3 (i.e. the structure is organized into a first tree - BST - and then transformed into a second tree - operator tree).

**Wherein the second data structure includes at least a first set of leaf nodes under a first ancestor node and a second set of leaf nodes under a second ancestor node** is disclosed at p. 1456, col. 2, Fig. 2(d) (i.e. operator tree with two sets of leaf nodes under two ancestor nodes).

**Identifying one or more potential candidate nodes for the first ancestor node based, at least in part, on ancestor nodes from the first data structure associated with the leaf nodes in the first set and identifying one or more potential candidate nodes for the second ancestor node based, at least in part, on ancestor nodes from the first data structure associated with the leaf nodes in the second set** is disclosed at p. 1456, col. 2, Fig. 2(b)-(d) (i.e. the root nodes Integer Subtract, integer add, exponent, and divide in the operator tree (d) are determined by their relationships with leaf nodes of the first set (A and C) and second set (B and 2) as well as D).

With respect to dependent claim 2, Zanibbi et al discloses **assigning the first ancestor node based on the potential candidate node most often identified as associated with the leaf nodes in the first set** at p. 1456, col. 2, Fig. 2 (i.e. leaf nodes AC and most identified as associated with the superscript node, which becomes the ancestor node Exponent in the final tree of 2(b)).

With respect to dependent claim 3, Zanibbi et al discloses **assigning the second ancestor node based on the potential candidate node most often identified as associated with the leaf nodes in the second set unless the potential candidate node most often identified as associated with the leaf nodes in the second set is the same as the potential candidate node most often identified as associated with the leaf nodes in the first set, and wherein when the potential candidate node most often identified as associated with the leaf nodes in the second set is the same as the potential candidate node most often identified as associated with the leaf nodes in the first set, then assigning the second ancestor node based on the potential candidate node second most often identified as associated with the leaf nodes in the second set or creating a new node for the second ancestor node** is disclosed at p. 1456, col. 2, Fig. 2 (i.e. the second set of leaf nodes is most identified as associated with the divide line or fraction node, which becomes the ancestor node Divide in the final tree of 2(b)).

With respect to dependent claim 5, Zanibbi et al discloses a **computer-readable medium having computer-executable instructions stored thereon for performing the method of**

**claim 1** at p. 1457, col. 1, paragraph 2 (i.e. use of a programming language and code to implement the transformation system).

With respect to independent claim 6, the claim corresponds to independent claim 1, and is rejected for the reasons discussed above.

With respect to dependent claim 7, the claim corresponds to dependent claim 2, and is rejected for the reasons discussed above.

With respect to dependent claim 9, the claim corresponds to dependent claim 2, and is rejected for the reasons discussed above.

With respect to dependent claim 10, Zanibbi et al discloses **creating a revised document data structure based on the second data structure and the assigned potential candidate node** at p. 1455, col. 1, Introduction (i.e. an application of the system is the conversion of scientific papers from printed to electronic form); Abstract (i.e. the Lexed BST is translated into Latex).

With respect to dependent claim 11, Zanibbi et al discloses that **the data in the first data structure represents electronic ink data** at p. 1455, Introduction (recognition of handwritten expressions permit users to write mathematical expressions on a data tablet); p. 1456, Fig. 2(a), 2(b) (i.e. the first tree is constructed from the electronic ink data of (a)).

With respect to dependent claim 12, Zanibbi et al discloses that **transforming includes parsing electronic ink data into a hierarchical data structure corresponding to the second data structure** at p. 1456, paragraphs 2-5; Fig. 2(a) (i.e. analyzing symbol layouts by searching for linear structures in the input; ability to handle irregular symbol layouts present in handwritten expressions; linear structures are organized into a BST as the basis for all subsequent processing).

With respect to dependent claim 13, the claim corresponds to dependent claim 5, and is rejected for the reasons discussed above.

With respect to independent claim 14, the claim corresponds to independent claim 1, and is rejected for the reasons discussed above. Furthermore, Zanibbi et al discloses a **system comprising a computer-readable medium and a processor** at p. 1457, col. 1, paragraph 2 (i.e. use of a programming language and code to implement the transformation system).

With respect to dependent claims 15 and 16, the claims correspond to dependent claims 2 and 3, respectively; and are rejected for the reasons discussed above.

With respect to independent claim 18, the claim corresponds to independent claim 1 and 14, and is rejected for the reasons discussed above.

With respect to dependent claim 19, the claim corresponds to dependent claim 2, and is rejected for the reasons discussed above.

With respect to dependent claims 21-24, the claims correspond to dependent claims 9-12, respectively; and are rejected for the reasons discussed above.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 4, 8, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Recognizing Mathematical Expressions Using Tree Transformations," by Zanibbi et al (2002), (hereinafter Zanibbi et al) - as applied in claims 1, 7, 14 and 19 - in view of Abe et al (US Pub. No. 2004/0088652 A1).

With respect to dependent claim 4, it is noted that Zanibbi et al does not appear to explicitly disclose the limitations of the claim. However, Abe et al discloses **determining which potential candidate node to assign as the first ancestor node and which potential candidate node to assign as the second ancestor node, based, at least in part, on a determination of which arrangement of potential candidate nodes will most reduce data processing operations when converting an original document data structure to a form represented by the second data structure** at paragraphs [0058-0059], [0065] (i.e. the use of a minimum-cost operation sequence for the transformation of one tree structure into another).

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Zanibbi et al and Abe et al before him or her, to modify the tree transformation system of Zanibbi et al with the structured document system of Abe et al, because Abe et al teaches that these limitations are useful in maintaining addressing information for modifications to tree-structured data items - between an unstructured data tree and a modified data tree (paragraphs [0030-0033]).

With respect to dependent claims 8, 17 and 20, the claims correspond to dependent claim 4, and are rejected for the reasons discussed above.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Richard (US Pub. No. 2002/0073119 A1) discloses a method of transforming from a first tree structure of nodes into a second tree structure of nodes.

Saldanha et al (US Pat. No. 6,714,939 B2) discloses a method for converting a plain text document into a structured data using parse trees based on the grammar of natural language.

Seni et al (US Pat. No. 6,285,786 B1) discloses a method for recognizing strokes and analyzing handwriting based on stroke input.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL KINSAUL whose telephone number is (571)272-9014. The examiner can normally be reached on Monday through Thursday, 8:00am till 5:00pm, alternate Fridays, est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Neveen Abel-jalil can be reached on (571)272-4074. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DK/ 7-30-09  
/Neveen Abel-Jalil/  
Supervisory Patent Examiner, Art Unit 2165